



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

000426

D407-667-205
Job Sheet 162554

Part No: D407-667-205

Job Qty: 1 ea

Part Name: Aft Crosstube - High 407



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 9/30/17

Job Tracking No:

Due Date: 11/15/17

Created By: Mario Poulin

Type: Stock

Description:

Customer: Helex LLC (CHELE01)

7016 Challenger Avenue Titusville, FL, 32780 USA ph:(321) 268-4969

Note: DWG REV G IPP Rev:C 05.09.02 Add holes for comp. w/ Bell Skids KJ/JLM IPP Rev:D Add Magnobond,Rubber Cushion,Clamps 07-02-19 JLM IPP Rev:E 08-05-22 add comment seq. 6 & QC15 & QC5 DD verf:EC IPP Rev:F 08-06-12 add comment seq. 24 DD verf:EC IPP Rev:G 08-08-19 revE per dwg DD verf:EC IPP Rev H 09.01.06 ECN 08-562 EC verf:DD IPP Rev:I 10.04.07 revise route seq. in bom DD verf:JLM IPP Rev J 11.04.26 removed abrasion strip ecn 11-551 EC verf:DD IPP REV:K 11.10.03 DEOD407-667-245-F-2 DD verf:EC

Ship Via:

Bill of Materials

Part/Part Name	Part Note	Serial No	Quantity	Location
D407-667-205 Aft Crosstube - High 407	DWG REV G IPP Rev:C 05.09.02 Add holes for comp. w/ Bell Skids KJ/JLM IPP Rev:D Add Magnobond,Rubber Cushion,Clamps 07-02-19 JLM IPP Rev:E 08-05-22 add comment seq. 6 & QC15 & QC5 DD verf:EC IPP Rev:F 08-06-12 add comment seq. 24 DD verf:EC IPP Rev:G 08-08-19 revE per dwg DD verf:EC IPP Rev H 09.01.06 ECN 08-562 EC verf:DD IPP Rev:I 10.04.07 revise route seq. in bom DD verf:JLM IPP Rev J 11.04.26 removed abrasion strip ecn 11-551 EC verf:DD IPP REV:K 11.10.03 DEOD407-667-245-F-2 DD verf:EC		0.000	
AN5-10A Bolt			0.000	
AN5-32A Bolt			0.000	
AN5-34A Bolt			0.000	
D2873-043 Nut Plate Assembly	DWG REV A IPP A 05.09.13 New issue KJ/JLM		0.000	
D2873-045 Nut Plate Assembly	DWG REV A IPP A 05.09.13 New issue KJ/JLM		0.000	
D2894-1 2.75 Support	DWG REV E IPP: B 02.11.26 Added mask hole KJ IPP Rev:C ECN 993 07-11-07 DD verified by:EC IPP D 08.03.19 Re-format EC verified by DD IPP REV:E 11.10.03 ASPER REV:C DD VERF:EC		0.000	
D3190-1 Chaffing Shield	DWG REV A IPP A 03.05.26 New issue KJ/RF		0.000	
3595-075-430 Rubber Cushion - 1" Wide X 4.30"	DWG REV A		0.000	
667-205TRN Tube Turning	DWG REV G IPP Rev:A 08-03-06 new issue DD verified by:ec IPP Rev B 08.04.02 Removed polish EC verified by: DD IPP Rev:C 08-08-19 revE as per dwg DD verified by:EC		0.000	
-AD4W8			0.000	
			0.000	
			0.000	
			0.000	

DART
AEROSPACE
S016049



Aft Crosstube -- High 407

PART NO: D407-667-205

Revision:

Operation:

Change No:

Start up Operation

Mfg Date: 11/30/17

Job No: 162554

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K64 1K7
CANADA
TEL: 1 613 632-5208
Email: sales@dartaero.com
www.dartaerospace.com

MS21920-25
Clamp
NAS1149D0563J
Washer

0.000

Job Routing

Op No	Operation	Qty	Due Date	Standard		Workcenter/Supplier	
				Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time
90	Start up Operation	1 Ea	11/14/17	0.00	0.00	Start up container	DP2
100	DC	1 pcs	11/14/17	0.00	0.00	DC	DP2
110	Packaging	1 pcs	11/14/17	0.00	0.00	Packaging1	DP2
120	CNC Bend Skidtubes	1 pcs	11/14/17	1.99	3.33	CNC Bend Skidtube	DP2
130	QC	1 pcs	11/14/17	0.00	0.00	QC15	DP2
140	Crosstubes	1 pcs	11/14/17	0.00	3.57	Crosstube	DP2
150	HandFXtube	1 pcs	11/14/17	0.00	0.91	HandFinish5	DP2
160	QC	1 pcs	11/14/17	0.00	0.00	QC7	DP2
170	QC	1 pcs	11/14/17	0.00	0.00	QC5	DP2
180	Outsource	1 pcs	11/14/17	0.00	0.00	Outsource2	DP2
190	Packaging	1 pcs	11/14/17	0.00	0.00	Packaging2	DP2
200	QC	1 pcs	11/14/17	0.00	0.00	QC5	DP2
210	SprayPaint	1 pcs	11/14/17	0.00	0.00	Spray Paint	DP2
220	QC	1 pcs	11/14/17	0.00	0.00	QC14	DP2
230	Crosstubes	1 pcs	11/15/17	0.00	3.57	Crosstube	DP2
240	QC	1 pcs	11/15/17	0.00	0.00	QC5	DP2
250	Packaging	1 pcs	11/15/17	0.00	0.00	Packaging1	DP2
260	QC	1 pcs	11/15/17	0.00	0.00	QC4	DP2
270	Packaging	1 pcs	11/15/17	0.00	0.00	Packaging3	DP2
280	QC21-FG	1 Ea	11/15/17	0.00	0.00	QC21	DP2

Part Op 100 - Photocopy bluefile and create labels as per PPP D407-667-205 CHG009

Descriptions: 120 - 1-Bend tube as per Dwg D407-667-245 using CNC bender program 407 Aft and Folio 21

140 - ***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** , VERIFIED BY: ***** 1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill all (3) top holes. Holes facing inboard. Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245 2- Drill fwd rivet holes using drill Jig DT8787 fwd as per Dwg D407-667-245. Note: FWD side has 3X top holes facing inboard. 3- C'sink holes as per dwg D407-667-245. Allow rivet to sit below surface to compensate for paint. 4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. Drill ONLY 2 top holes ONLY plug most bottom hole to prevent accidental drilling. Drill holes and ream using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill only the top (2) holes. Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245 5-Drill aft rivet holes using drill Jig DT8787 aft as per Dwg D407-667-245. Drill only the top (2) holes. 6- C'sink holes as per dwg D407-667-245. Allow rivet to sit below surface to compensate for paint. 8-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***Debur & Inspect for surface damage. Repair damage within limits as per Dwg D407-667-245

150 - ***IMMEDIATELY AFTER GRINDING***

180 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 0380

190 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

200 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

210 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1-Prime inside and outside crosstube as per DEO D407-667-245 and QSI 005 4.2 ***Mask underside of crosstube as shown*** 3- Apply clear coat as per dwg Clear Coat Batch: 137170 Primer 138646 white 138637

220 - Then,Wrap in plastic bag to protect from scratches

230 - 1- Install chaffing shield as per D407-667-245 using DT10096 to establish 8.90 dimension. Top holes should be facing up. ****Ensure chaffing is to be position "overlap" AFT**** A/R Proseal 890 Batch: 138708 EXP: 5/18

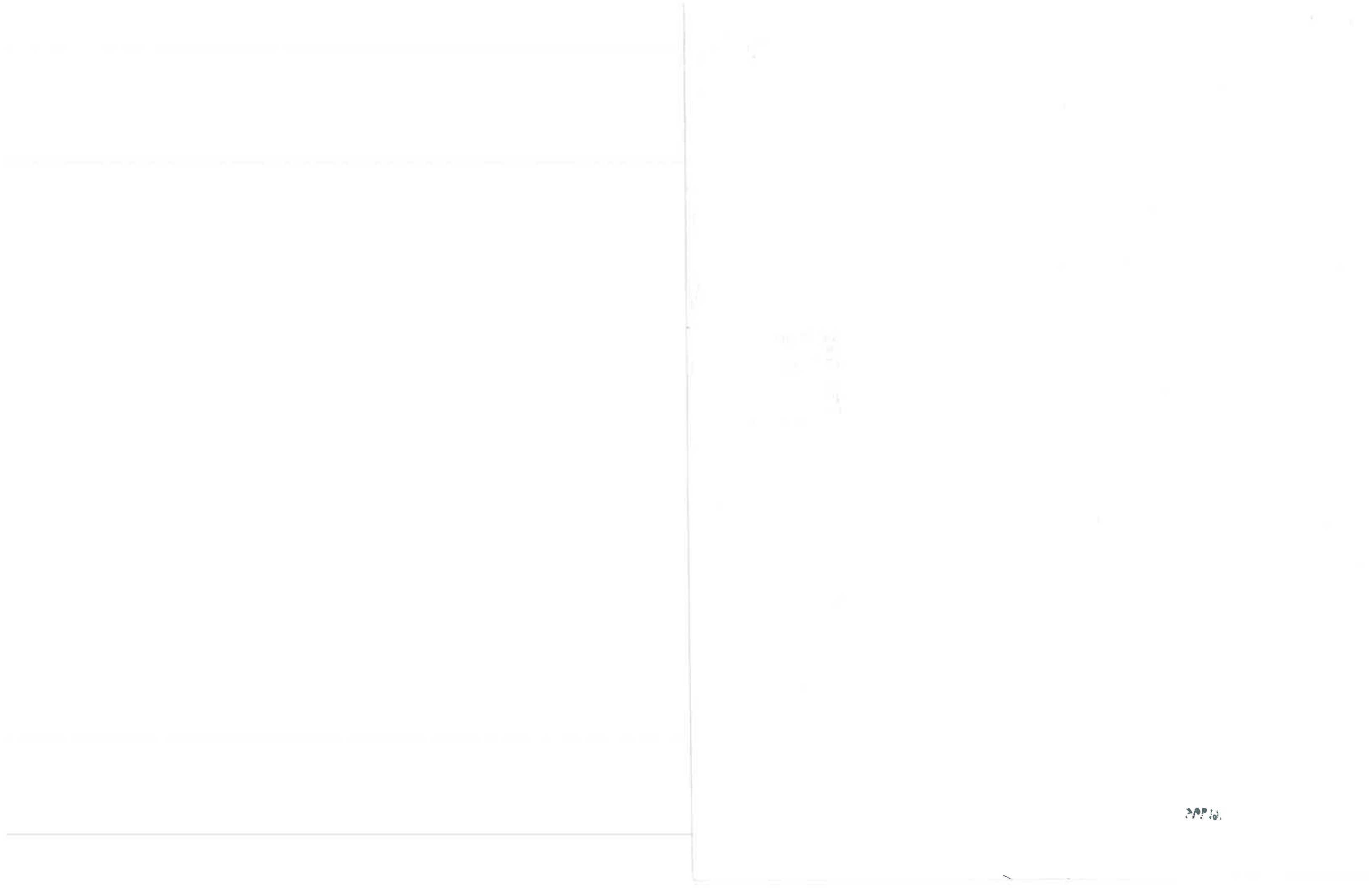
2- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe 3-Install support with Scotch-Weld DP460 and install clamps as per Dwg D407-667-245 using installation jig DT9025. Torque clamps as per dwg A/R Scotch-Weld DP460 Batch: 137679 EXP: 6/13 ***LET CURE FOR 24 HOURS*** CURE TIME: START: 18-1-19 FINISH: 18-1-20 4-Install nut plates as per Dwg D407-667-245. Touch-up rivet heads with Imron paint.

240 - ***RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURE FOR 24HOURS AS PER DWG DEO***

270 - Identify and in kanban rack

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation 161995	D407-667-205TRN	1	0	0	0
230-Crosstubes	D2873-043 5034892	2	0	0	0



323

	D2873-045	5018818	2	0	0	0
	D2894-1	F149816	1	0	0	0
	D3190-1	138928	2	0	0	0
	D3595-075-430	5033987	2	0	0	0
	MS20601-AD4W8	5019434	14	0	0	0
	MS21920-22	5013763	4	0	0	0
	MS21920-25	1139441-102	2	0	0	0
	NAS1149D0563J		18	0	0	0
250-Packaging	AN5-10A		10	0	0	0
	AN5-32A		4	0	0	0
	AN5-34A		4	0	0	0
	MS21042L5		4	0	0	0
Part Specifications						
Specifications could not be found.						

Work Order ID 162554
Monday, June 05, 2017 9:31:35 AM

162554

Page 1

Item ID: D407-667-205 Accept *N9NNN401NN* Setup Start *NS1*
Revision ID: Aft Crosstube - High 407
Item Name: Aft Crosstube - High 407
Start Date: 6/16/2017 Start Qty: 1.00 *1*
Required Date: 6/30/2017 Req'd Qty: 1.00 *1*
Reference: Cust Item ID:
Customer:

Approvals: Process Plan: DAS Date: JUN 07 2017 Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D407-667-245	G								

100 Document Control 0.00
1NN DOCUMENT CONTROL
DC Memo 0.02
Doc Control -USB or Paperwork Photocopy bluefile and create labels as per PPP D407-667-205 CHG009

110 Pick Kit 0.00
11N Packaging
Packaging Memo 0.24

120 BENDING MACHINE - CROSSTUBES 0.56
12N CNC Bend 1
CNC Delta 100 Bender Memo 1.30
1-Bend tube as per Dwg D407-667-245 using CNC bender program 407 Aft and Folio 21

Handwritten signature and initials.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

QA Closed: **DAS 53** Date: **AUG 15 2018**

Work Order: 9-89 102-554		DISPOSITION		AGAINST DEPARTMENT/PROCESS																			
Part No. 0167-603-205		Rework ☐ Scrap ☐ Use-as-is ☒		Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐		Cross tube ☒ Small Fab ☐ Finishing ☐ Composite ☐		Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging Supplier ☐		Engineering Quality ☐ Other ☐													
NCR No.		Suspected Unapproved		QTY Effective: 1		Disposition 1		MRB (QS1042) Approval DAS 12 17/11/30 9-89		Completed By DAS 12 17/11/30 9-89													
Date: 17/11/30		Step #: 120		Description Work Order Deviation		Disposition		Lead hand / Supervisor Approval Verification DAS 9 18-04-24 9-89		QC / QA Coordinator Approval DAS 9 18-04-24 9-89													
<i>Angles under tolerance after bending</i> <i>Acceptable.</i>																							
Root Cause				FAULT CATEGORY																			
Environment: ☐				☐ No Re-verification				☐ Pressure/Forced				☐ Temperature/Cure				☐ Power Loss/Surge				☐ Positioned Wrong			
Design: ☐				☐ Operator				☐ Bending				☐ Set-up				☐ Folio/Program				☐ Outside Dimensions			
Doc/Data: ☐				☐ Offset/Setup				☐ Centre Not Concentric				☐ BOM/Route				☐ Grain				☒ Over/Under tolerance			
Equip/Tooling: ☐				☐ Supplier				☐ Cracks				☐ Broken/Damage/Defect				☐ Weld				☐ Part Incorrect			
Handling/Pre: ☐				☐ Training				☐ Crimp/Kink/Ripple/Wave				☐ Inspection Incomplete/Unqualified				☐ Wrong Stock Pulled				☐ Part Lost/Missing			
Material: ☐				☐ Use for Testing				☐ Cuffs				☐ Contamination				☐ Out of Sequence				☐ Part Moved			
Internal Transport: ☐				☐ Poor Information				☐ Crushing				☐ Countersink				☐ Off-set				☐ Drawing			
Tribal Knowledge: ☐				☐ Rushing				☐ Heat Treat				☐ Cut Too Short				☐ Mislabeled				☐ Finish			
LOA: ☐				☐ Product Improvement				☐ Wave/Twist in Tube				☐ Instructions Incomplete/Unclear				☐ Fit/Function				☐ Misread			
Substation: ☐				☒ Process Improvement				☐ Marks/Chatter				☐				☐				☐ Turning Sequence			
Past Expiry Date: ☐				☒ Manufacturing Process				☐				☐				☐				☐			
Misidentified: ☐				☐ Past Due				☐				☐				☐				☐			
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WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube Machining ☐ Thermoforming Large Fab ☐ Cross tube Small Fab ☐ Finishing Composite ☐ Water Jet Prod. Eng. Coord. ☐ Rec/Store/Packaging Supplier ☐ Engineering Quality Other ☐							
Date : _____	Step #: _____	QTY Effective : _____				MRB (QSI042) Approval					
Description Work Order Deviation		Disposition				Completed By					
						Lead hand / Supervisor Approval Verification					
						QC / QA Coordinator Approval					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		Root Cause No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		FAULT CATEGORY Temperature/Cure Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		FAULT CATEGORY Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐		FAULT CATEGORY Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS							
Part No. _____		Rework ☐ Scrap ☐ Use-as-is ☐		Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐		Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐		Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐		Engineering ☐ Quality ☐ Other ☐	
NCR No. _____		Suspected Unapproved		QTY Effective : _____							
Date : _____		Step #:		Disposition							
Description Work Order Deviation				Disposition							
				Completed By							
				Lead hand / Supervisor Approval Verification							
				QC / QA Coordinator Approval							
				MRB (QSI042) Approval							
Root Cause		FAULT CATEGORY									
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐		Power Loss/Surge ☐		Positioned Wrong ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐		Folio/Program ☐		Outside Dimensions ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐		Grain ☐		Over/Under tolerance ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐		Weld ☐		Part Incorrect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐		Wrong Stock Pulled ☐		Part Lost/Missing ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐		Out of Sequence ☐		Part Moved ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐		Off-set ☐		Drawing ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐		Mislabeled ☐		Finish ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐		Fit/Function ☐		Misread ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐		Misaligned/off center ☐		Turning Sequence ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : _____							
Misidentified ☐		Past Due ☐									

Work Order ID 162554
Monday, June 05, 2017 9:31:35 AM

162554

Item ID: D407-667-205 Accept *N900040100* Setup Start *NS1*
Revision ID: Aft Crosstube - High 407 Stop *NS2*
Start Date: 6/16/2017 Start Qty: 1.00 Cust Item ID:
Required Date: 6/30/2017 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Drill only the top (2) holes.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: *****

6- C'sink holes as per dwg D407-667-245. Allow rivet to sit below surface to compensate for paint.

7- Scribe tube to identify on the inner chamfer in the cuff D# and B#

8-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***Debur & inspect for surface damage. Repair damage within limits as per Dwg D407-667-245

150
150
Hand Xtube
Hand Finishing Crosstubes

Crosstubes Chemical Conversion 0.00

Memo 0.80

IMMEDIATELY AFTER GRINDING

1- PRESSURE WASH X-TUBE INSIDE AND OUT

2- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT AS PER QSI005.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed:

Date:

Work Order update only

☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube Machining ☐ Thermoforming Large Fab ☐ Cross tube Small Fab ☐ Finishing Composite ☐ Water Jet Prod. Eng. Coord. ☐ Rec/Store/Packaging Supplier ☐ Engineering Quality Other ☐☐☐					
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval					
Description Work Order Deviation				Disposition					
				Completed By					
				Lead hand / Supervisor Approval Verification					
				QC / QA Coordinator Approval					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		No Re-verification Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐					
OTHER :									

Work Order ID 162554
Monday, June 05, 2017 9:31:35 AM

162554

Item ID: D407-667-205 Accept *N900040100* Setup Start *NS1*
Revision ID: Item Name: Att Crossube - High 407 Stop *NS2*
Start Date: 6/16/2017 Start Qty: 1.00 Cust Item ID:
Required Date: 6/30/2017 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC7-Inspect Chemical Conversion Coat	0.00							
160	QC								
Quality Control	Memo	0.03							

170 QC5- Inspect part completeness to step on W/O 0.00
170
QC Memo 0.02
Quality Control

180 Outsource process - NDT per OSI038 4.1 0.00
180
Outsource2 Memo 180.00
Outsource process - NDT *** WEAR LATEX GLOVES WHEN HANDLING CROSTUBE***
Liqud Penetrant Inspection as per OSI 0380
Issue P/O: LPI as per ASTM 1417
Level 2 Attach copy of NDT results to work order

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐									
Date : _____		Step #: _____		QTY Effective : _____									
Description Work Order Deviation				Disposition									
												Completed By	
												Lead hand / Supervisor Approval Verification	
												QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		No Re-verification Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐									
OTHER : _____													

Work Order ID 162554
Monday, June 05, 2017 9:31:35 AM

162554

Item ID: D407-667-205 Accept *N900040100* Setup Start *NS1*
Revision ID: Item Name: Aft Crosstube - High 407 Stop *NS2*
Start Date: 6/16/2017 Start Qty: 1.00 *1*
Required Date: 6/30/2017 Req'd Qty: 1.00 *1*
Reference: Cust Item ID: Customer:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	Receive & Inspect for Damage & Mat'l Cuts	0.00							
190	Packaging								
Packaging	Memo *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Ensure copy of NDT results attached to work order.								

200 QC5- Inspect part completeness to step on W/O 0.00
200 Memo 0.02
QC *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***
Quality Control

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date : _____		Step #: _____		QTY Effective : _____							
Description Work Order Deviation				Disposition							
										Completed By	
										Lead hand / Supervisor	
										Approval Verification	
										QC / QA Coordinator Approval	

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Work Order ID 162554
Monday, June 05, 2017 9:31:35 AM

162554

Item ID: D407-667-205 Accept *N900040100* Setup Start *NS1*
Revision ID: At Crossube - High 407 Stop *NS2*
Item Name: Start Date: 6/16/2017 Start Qty: 1.00 Cust Item ID:
Required Date: 6/30/2017 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210	Spray Painting per QSI005 4.2	0.00							
210	SprayPaint								
Memo 2.16									
*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***									

1-Prime inside and outside crosstube as per DEO D407-667-245 and QSI 005 4.2

PRIME:
Start Time: _____
Finish Time: _____

Mask underside of crosstube as shown

2-Paint outside crosstube with White Intron as per QSI 005 4.2

PAINT:
Start Time: _____
Finish Time: _____
3- Apply clear coat as per dwg
Clear Coat Batch: _____

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

QA Closed: _____ Date: _____

Work Order: _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS							
Part No. _____		Rework ☐ Scrap ☐ Use-as-is ☐		Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐		Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐		Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐		Engineering ☐ Quality ☐ Other ☐	
NCR No. _____		Suspected Unapproved ☐		QTY Effective : _____							
Date : _____		Step #:		Disposition							
Description Work Order Deviation				Disposition							
				Completed By							
				Lead hand / Supervisor Approval Verification							
				QC / QA Coordinator Approval							
Root Cause		FAULT CATEGORY									
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐		Power Loss/Surge ☐		Positioned Wrong ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐		Folio/Program ☐		Outside Dimensions ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐		Grain ☐		Over/Under tolerance ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐		Weld ☐		Part Incorrect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐		Wrong Stock Pulled ☐		Part Lost/Missing ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐		Out of Sequence ☐		Part Moved ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐		Off-set ☐		Drawing ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐		Mislabeled ☐		Finish ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐		Fit/Function ☐		Misread ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐		Misaligned/off center ☐		Turning Sequence ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : _____							
Misidentified ☐		Past Due ☐									

Work Order ID 162554
Monday, June 05, 2017 9:31:35 AM

162554

Item ID: D407-667-205 Accept *N99NN40100* Setup Start *N.S1*
Revision ID: Aft Crossube - High 407 Stop *N.S1*
Start Date: 6/16/2017 Start Qty: 1.00 Cust Item ID: *N.S1*
Required Date: 6/30/2017 Req'd Qty: 1.00 Customer: *N.S1*
Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	*NR1*		
	QC:	Date:	SPC (Y/N):	Date:	Stop		*NR2*		
Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220	QC14- Inspect Spray Paint	0.00							
999									
QC									
Quality Control	Memo	0.01							
	Then, Wrap in plastic bag to protect from scratches								

Memo
Then, Wrap in plastic bag to protect from scratches

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

QA Closed: _____ Date: _____

Work Order: _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS							
Part No. _____		Rework ☐ Scrap ☐ Use-as-is ☐		Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐		Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐		Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐		Engineering ☐ Quality ☐ Other ☐	
NCR No. _____		Suspected Unapproved ☐		QTY Effective : _____							
Date : _____		Step #:		Disposition							
Description Work Order Deviation				Disposition							
				Completed By							
				Lead hand / Supervisor Approval Verification							
				QC / QA Coordinator Approval							
Root Cause		FAULT CATEGORY									
Environment		No Re-verification		Pressure/Forced		Temperature/Cure		Power Loss/Surge		Positioned Wrong	
Design		Operator		Bending		Set-up		Folio/Program		Outside Dimensions	
Doc/Data		Offset/Setup		Centre Not Concentric		BOM/Route		Grain		Over/Under tolerance	
Equip/Tooling		Supplier		Cracks		Broken/Damage/Defect		Weld		Part Incorrect	
Handling/Pre		Training		Crimp/Kink/Ripple/Wave		Inspection Incomplete/Unqualified		Wrong Stock Pulled		Part Lost/Missing	
Material		Use for Testing		Cuffs		Contamination		Out of Sequence		Part Moved	
Internal Transport		Poor Information		Crushing		Countersink		Off-set		Drawing	
Tribal Knowledge		Rushing		Heat Treat		Cut Too Short		Mislabeled		Finish	
LOA		Product Improvement		Wave/Twist in Tube		Instructions Incomplete/Unclear		Fit/Function		Misread	
Substation		Process Improvement		Marks/Chatter				Misaligned/off center		Turning Sequence	
Past Expiry Date		Manufacturing Process									
Misidentified		Past Due		OTHER :							

Work Order ID 162554
Monday, June 05, 2017 9:31:35 AM

162554

Item ID: D407-667-205 Accept *N9000040100* Setup Start *NS1*
Revision ID: Aft Crosstube - High 407 Stop *NS2*
Start Date: 6/16/2017 Start Qty: 1.00 Cust Item ID:
Required Date: 6/30/2017 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230	Crosstubes	0.00							
2220	Crosstubes	2.65							

Memo
1- Install chaffing shield as per D407-667-245 using DT10096 to establish 8.90
dimension. Top holes should be facing up.
****Ensure chaffing is to be position "overlap" AFT****
A/R Proseal 890 Batch: EXP:

2- Lightly scuff the bonded area using a 320 grit sand paper and clean the area
with 41058 wash w/ wipe

3-Install support with Scotch-Weld DP460 and install clamps as per Dwg D407-
667-245 using installation jig DT9025. Torque clamps per dwg
A/R Scotch-Weld DP460 Batch: EXP:

LET CURE FOR 24 HOURS
CURE TIME:
START:
FINISH:

4-Install nut plates as per Dwg D407-667-245. Touch-up rivet heads with Intron
paint.

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

QA Closed: _____ Date: _____

Work Order: _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS							
Part No. _____		Rework Scrap Use-as-is		Skid-tube Machining Thermoforming Large Fab		Cross tube Small Fab Finishing Composite		Water Jet Prod. Eng. Coord. Rec/Store/Packaging Supplier		Engineering Quality Other	
NCR No. _____		Suspected Unapproved		QTY Effective : _____							
Date : _____		Step #: _____		Disposition							
Description Work Order Deviation				Disposition							
				Completed By							
				Lead hand / Supervisor Approval Verification							
				QC / QA Coordinator Approval							
Root Cause		FAULT CATEGORY									
Environment		☐ No Re-verification		☐ Pressure/Forced		☐ Temperature/Cure		☐ Power Loss/Surge		☐ Positioned Wrong	
Design		☐ Operator		☐ Bending		☐ Set-up		☐ Folio/Program		☐ Outside Dimensions	
Doc/Data		☐ Offset/Setup		☐ Centre Not Concentric		☐ BOM/Route		☐ Grain		☐ Over/Under tolerance	
Equip/Tooling		☐ Supplier		☐ Cracks		☐ Broken/Damage/Defect		☐ Weld		☐ Part Incorrect	
Handling/Pre		☐ Training		☐ Crimp/Kink/Ripple/Wave		☐ Inspection Incomplete/Unqualified		☐ Wrong Stock Pulled		☐ Part Lost/Missing	
Material		☐ Use for Testing		☐ Cuffs		☐ Contamination		☐ Out of Sequence		☐ Part Moved	
Internal Transport		☐ Poor Information		☐ Crushing		☐ Countersink		☐ Off set		☐ Drawing	
Tribal Knowledge		☐ Rushing		☐ Heat Treat		☐ Cut Too Short		☐ Mislabeled		☐ Finish	
LOA		☐ Product Improvement		☐ Wave/Twist in Tube		☐ Instructions Incomplete/Unclear		☐ Fit/Function		☐ Misread	
Substation		☐ Process Improvement		☐ Marks/Chatter		☐		☐ Misaligned/off center		☐ Turning Sequence	
Past Expiry Date		☐ Manufacturing Process		OTHER : _____							
Misidentified		☐ Past Due									

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube Machining ☐ Thermoforming Large Fab ☐ Cross tube Small Fab Finishing Composite ☐ Water Jet Prod. Eng. Coord. Rec/Store/Packaging Supplier ☐ Engineering Quality Other ☐							
Date : _____		Step #: _____		QTY Effective : _____							
Description Work Order Deviation				Disposition							
										MRB (QSI042) Approval	
										Completed By	
										Lead hand / Supervisor Approval Verification	
										QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY									
Environment ☐		☐ No Re-verification		☐ Pressure/Forced		☐ Temperature/Cure		☐ Power Loss/Surge		☐ Positioned Wrong	
Design ☐		☐ Operator		☐ Bending		☐ Set-up		☐ Folio/Program		☐ Outside Dimensions	
Doc/Data ☐		☐ Offset/Setup		☐ Centre Not Concentric		☐ BOM/Route		☐ Grain		☐ Over/Under tolerance	
Equip/Tooling ☐		☐ Supplier		☐ Cracks		☐ Broken/Damage/Defect		☐ Weld		☐ Part Incorrect	
Handling/Pre ☐		☐ Training		☐ Crimp/Kink/Ripple/Wave		☐ Inspection Incomplete/Unqualified		☐ Wrong Stock Pulled		☐ Part Lost/Missing	
Material ☐		☐ Use for Testing		☐ Cuffs		☐ Contamination		☐ Out of Sequence		☐ Part Moved	
Internal Transport ☐		☐ Poor Information		☐ Crushing		☐ Countersink		☐ Off-set		☐ Drawing	
Tribal Knowledge ☐		☐ Rushing		☐ Heat Treat		☐ Cut Too Short		☐ Mislabeled		☐ Finish	
LOA ☐		☐ Product Improvement		☐ Wave/Twist in Tube		☐ Instructions Incomplete/Unclear		☐ Fit/Function		☐ Misread	
Substation ☐		☐ Process Improvement		☐ Marks/Chatter		☐		☐ Misaligned/off center		☐ Turning Sequence	
Past Expiry Date ☐		☐ Manufacturing Process		OTHER : _____							
Misidentified ☐		☐ Past Due									

Work Order ID 162554
Monday, June 05, 2017 9:31:35 AM

162554

Item ID: D407-667-205 Accept *N900040100* Setup Start *NS1*
Revision ID: Item Name: Aft Crosstube - High 407 Stop *NS2*
Start Date: 6/16/2017 Start Qty: 1.00 Cust Item ID:
Required Date: 6/30/2017 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270	Identify as per dwg & Stock Location: _____	0.00							
270	Packaging								
	Memo	0.01							
	Identify and in kanban rack								
	Location : FG097								

280 QC21- Final Inspection - Work Order Release 0.00
280
QC Memo 0.10
Quality Control

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed:

Date:

Work Order update only

☐

Work Order: _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS													
Part No. _____		Rework ☐ Scrap ☐ Use-as-is ☐		Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐		Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐		Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐		Engineering ☐ Quality ☐ Other ☐							
NCR No. _____		Suspected Unapproved ☐		QTY Effective : _____													
Date : _____		Step #: _____		Disposition													
Description Work Order Deviation				Disposition													
												Completed By					
												Lead hand / Supervisor Approval Verification					
												QC / QA Coordinator Approval					
Root Cause				FAULT CATEGORY													
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐				Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐				Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐				Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	
OTHER : _____																	

Picklist Print

Monday, June 05, 2017 9:31:31 AM

Work Order ID: 162554
Parent Item: D407-667-205
Parent Item Name: Alt Crosstube - High 407

162554
D407-667-205

Start Date: 6/16/2017
Start Qty: 1.00
Required Date: 6/30/2017
Required Qty: 1.00

Comments: IPP Rev:C 05.09.02 Add holes for compatibility with Bell SkidubesKJ/JLM
IPP Rev:D Added Magnobond,Rubber Cushion & Clamps JLM 07-02-19

****CHANGE TO CHG 005 - IF USING D2894-1 B35578 OR GREATER****
IPP Rev:E 08-05-22 add comment in seq. 6 and QC15 and QC5 DD verified by:EC
IPP Rev:F 08-06-12 add comment in seq. 24 DD verified by:EC
IPP Rev:G 08-08-19 reve as per dwg DD verified by:EC
IPP Rev:H 09.01.06 ECN 08-562 EC verified by:DD IPP Rev:I 10.04.07 revise route seq. in bom DD verified by:JLM IPP Rev J 11.04.26 removed abrasion strip ecn 11-551 EC verified by:DD
11.10.03 DEO D407-667-245-F-2 DD ver:EC IPP REV:K

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
AN5-10A		Purchased	No			250	Each	225.0000	10	10			
**													
				Location			Loc Qty					Loc Code	
				GA			29						
				122800			29						
				over003			50						
				m137680			50						
				ST338			146						
				m137544			146						

AN5-10A

Bolt

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS													
Part No. _____		Rework ☐ Scrap ☐ Use-as-is ☐		Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐		Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐		Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐		Engineering ☐ Quality ☐ Other ☐							
NCR No. _____		Suspected Unapproved ☐		QTY Effective : _____		MRB (QS1042) Approval											
Date : _____		Step #: _____		Disposition		Completed By											
Description Work Order Deviation				Disposition													
												Lead hand / Supervisor Approval Verification					
												QC / QA Coordinator Approval					
														Root Cause			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐				Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐				Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐				Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	
OTHER : _____																	

Picklist Print

Monday, June 05, 2017 9:31:31 AM

Work Order ID: 162554
Parent Item: D407-667-205
Parent Item Name: Aft Crosstube - High 407

162554
D407-667-205

Start Date: 6/16/2017
Start Qty: 1.00
Required Date: 6/30/2017
Required Qty: 1.00

AN5-32A
Bolt
AN5-32A
Purchased No 250 Each 210.0000 4 4
**

Location Loc Qty Loc Code
over004 200
ml37320 80
ml37464 120
ST336 10
ml36741 10
250 Each 73.0000 4 4
**

AN5-34A
Bolt
AN5-34A
Purchased No 250 Each 73.0000 4 4
**

Location Loc Qty Loc Code
over004 60
ml37361 30
ml37587 30
ST336 13
ml35470 13
230 Each 97.0000 2 2
**

Location Loc Qty Loc Code
LG050 97
155504 5
156196 29
159540 30
161520 33

D2873-043
D2873-043
Nut Plate Assembly

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed:

Date:

Work Order update only

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date : _____		Step #: _____		QTY Effective : _____							
Description Work Order Deviation				Disposition							
										MRB (QS1042) Approval	
										Completed By	
										Lead hand / Supervisor Approval Verification	
										QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		No Re-verification Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
OTHER :											

Picklist Print

Monday, June 05, 2017 9:31:32 AM

Work Order ID: 162554

Parent Item: D407-667-205

Parent Item Name: Aft Crosstube - High 407

162554

D407-667-205

Start Date: 6/16/2017

Required Date: 6/30/2017

Start Qty: 1.00

Required Qty: 1.00

D2873-045

Manufactured

No

D2873-045

Manufactured

No

Location

Loc Qty

Loc Code

LG050

30

159547

30

LG50

41

161521

41

230

Each

71.0000

**

2

2

D2894-1

Manufactured

No

D2894-1

Manufactured

No

Location

Loc Qty

Loc Code

LG051

13

137198

1

138964

2

149816

10

230

Each

13.0000

**

1

1

D3190-1

Manufactured

No

D3190-1

Manufactured

No

Location

Loc Qty

Loc Code

LG-OVER

67

138928

67

230

Each

67.0000

**

2

2

D3595-075-430

Manufactured

No

D3595-075-430

Manufactured

No

Location

Loc Qty

Loc Code

LG-OVER

67

138928

67

230

Each

6.0000

**

2

2

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

QA Closed: _____ Date: _____

Work Order: _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS							
Part No. _____		Rework ☐ Scrap ☐ Use-as-is ☐		Skid-tube Machining ☐ Thermoforming ☐ Large Fab ☐		Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐		Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐		Engineering Quality ☐ Other ☐	
NCR No. _____		Suspected Unapproved ☐		QTY Effective : _____							
Date : _____		Step #:		Disposition							
Description Work Order Deviation				Disposition							
				Completed By							
				Lead hand / Supervisor Approval Verification							
				QC / QA Coordinator Approval							
Root Cause		FAULT CATEGORY									
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐		Power Loss/Surge ☐		Positioned Wrong ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐		Folio/Program ☐		Outside Dimensions ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐		Grain ☐		Over/Under tolerance ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐		Weld ☐		Part Incorrect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐		Wrong Stock Pulled ☐		Part Lost/Missing ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐		Out of Sequence ☐		Part Moved ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐		Off-set ☐		Drawing ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐		Mislabeled ☐		Finish ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐		Fit/Function ☐		Misread ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐		Misaligned/off center ☐		Turning Sequence ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : _____							
Misidentified ☐		Past Due ☐									

Picklist Print

Monday, June 05, 2017 9:31:32 AM

Work Order ID: 162554
Parent Item: D407-667-205
Parent Item Name: Aft Crosstube - High 407

162554
D407-667-205

Start Date: 6/16/2017 Required Date: 6/30/2017
Start Qty: 1.00 Required Qty: 1.00

D407-667-205TRN Manufactured No
D407-667-205TRN
Crosstube Turning Detail

Location	Loc Qty	Loc Code
LG014	4	
148762	1	
148763	1	
148764	1	
148765	1	

MS20601-AD4W8 Purchased No
MS20601-AD4W8
RIVET

Location	Loc Qty	Loc Code
LG056	141	
M135704	141	
ST307	150	
M137587	150	

MS21042L5 Purchased No
MS21042L5
Nut

Location	Loc Qty	Loc Code
GA	12	
m127813	12	
ST303	714	
m137361	14	
m137478	200	
m137587	500	

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS									
Part No. _____		☐ Rework ☐ Scrap ☐ Use-as-is		☐ Skid-tube Machining Thermoforming Large Fab		☐ Cross tube Small Fab Finishing Composite		☐ Water Jet Prod. Eng. Coord. Rec/Store/Packaging Supplier		☐ Engineering Quality Other			
NCR No. _____		☐ Suspected Unapproved		QTY Effective : _____									
Date : _____		Step #: _____		Disposition									
Description Work Order Deviation				Disposition									
												Completed By	
												Lead hand / Supervisor Approval Verification	
												QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY											
Environment		☐ No Re-verification		☐ Pressure/Forced		☐ Temperature/Cure		☐ Power Loss/Surge		☐ Positioned Wrong			
Design		☐ Operator		☐ Bending		☐ Set-up		☐ Folio/Program		☐ Outside Dimensions			
Doc/Data		☐ Offset/Setup		☐ Centre Not Concentric		☐ BOM/Route		☐ Grain		☐ Over/Under tolerance			
Equip/Tooling		☐ Supplier		☐ Cracks		☐ Broken/Damage/Defect		☐ Weld		☐ Part Incorrect			
Handling/Pre		☐ Training		☐ Crimp/Kink/Ripple/Wave		☐ Inspection Incomplete/Unqualified		☐ Wrong Stock Pulled		☐ Part Lost/Missing			
Material		☐ Use for Testing		☐ Cuffs		☐ Contamination		☐ Out of Sequence		☐ Part Moved			
Internal Transport		☐ Poor Information		☐ Crushing		☐ Countersink		☐ Off-set		☐ Drawing			
Tribal Knowledge		☐ Rushing		☐ Heat Treat		☐ Cut Too Short		☐ Mislabeled		☐ Finish			
LOA		☐ Product Improvement		☐ Wave/Twist in Tube		☐ Instructions Incomplete/Unclear		☐ Fit/Function		☐ Misread			
Substation		☐ Process Improvement		☐ Marks/Chatter		☐		☐ Misaligned/off center		☐ Turning Sequence			
Past Expiry Date		☐ Manufacturing Process		OTHER : _____									
Misidentified		☐ Past Due											

Picklist Print

Monday, June 05, 2017 9:31:32 AM

Work Order ID: 162554
Parent Item: D407-667-205
Parent Item Name: Alt Crosstube - High 407

162554
D407-667-205

Start Date: 6/16/2017
Start Qty: 1.00
Required Date: 6/30/2017
Required Qty: 1.00

MS21920-22
Clamp
Purchased
No

230 Each 84.0000 4 4

**

Location

Loc Qty

Loc Code

LG050
M136768
M137604

84
34
50
230 Each 128.0000 2 2

**

MS21920-25
Clamp
Purchased
No

Location
FG
120920
m134987
LG050
m136621
m136648
m136866
m137361
m137459
m137587

Loc Qty
4
2
2
124
2
25
22
25
25
25

Loc Code

120920
m134987
LG050
m136621
m136648
m136866
m137361
m137459
m137587

230 Each 1,337.000 18 18

**

NAS1149D0563J
Washer
Purchased
No

Location

Loc Qty

Loc Code

GA
m135774
ST263
m137361
m137587

110
110
1227
227
1000

WORK ORDER NON-CONFORMANCE / UPDATE

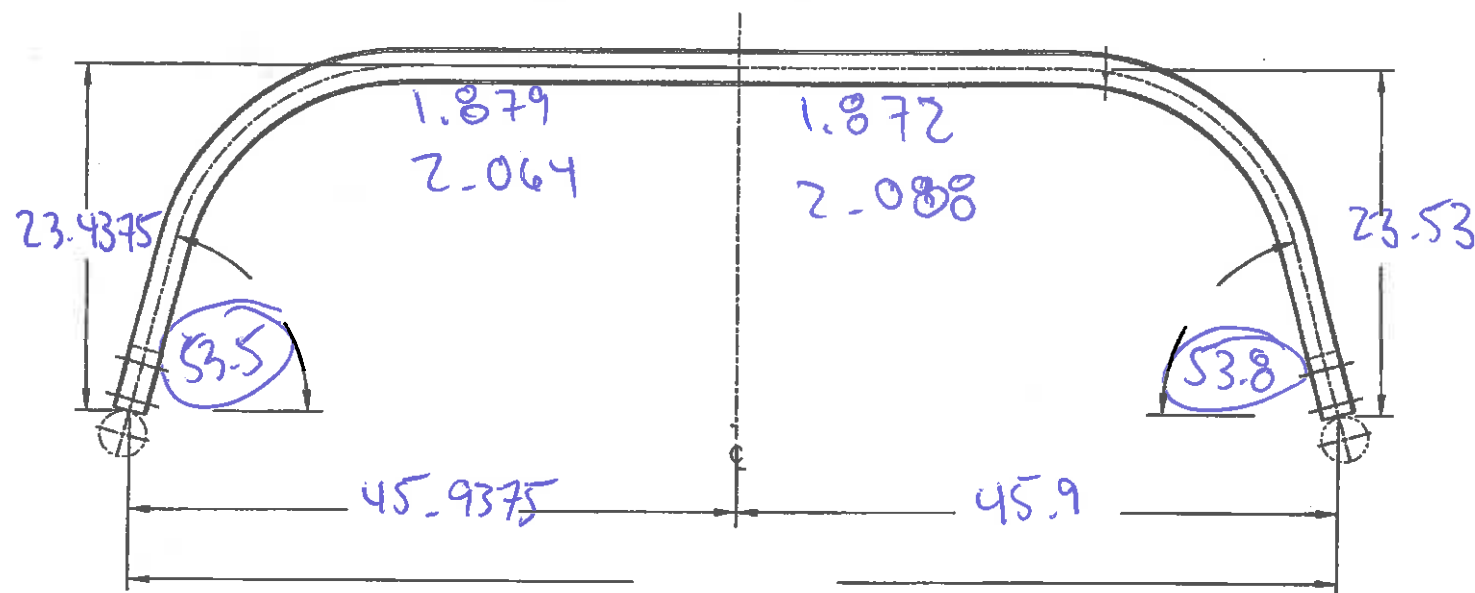
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS							
Part No. _____		Rework ☐ Scrap ☐ Use-as-is ☐		Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐		Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐		Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐		Engineering Quality ☐ Other ☐	
NCR No. _____		Suspected Unapproved ☐		QTY Effective : _____							
Date : _____		Step #:		Disposition							
Description Work Order Deviation				Disposition							
				Completed By							
				Lead hand / Supervisor Approval Verification							
				QC / QA Coordinator Approval							
				MRB (QSI042) Approval							
Root Cause		FAULT CATEGORY									
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐		Power Loss/Surge ☐		Positioned Wrong ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐		Folio/Program ☐		Outside Dimensions ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐		Grain ☐		Over/Under tolerance ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐		Weld ☐		Part Incorrect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐		Wrong Stock Pulled ☐		Part Lost/Missing ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐		Out of Sequence ☐		Part Moved ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐		Off-set ☐		Drawing ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐		Mislabeled ☐		Finish ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐		Fit/Function ☐		Misread ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐		Misaligned/off center ☐		Turning Sequence ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : _____							
Misidentified ☐		Past Due ☐									

DART AEROSPACE LTD	Work Order:	162554
Description: Crosstube High Aft (407)	Part Number:	D407-667-205
Inspection Dwg: D407-667-245 Rev: G		Page 1 of 1

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	45.79	46.05
Angle	54	56
Total Span	91.58	92.100
Bending Passes	6	--
Crushing	--	6%



	Side A	Side B
Bending Passes	28	28
Crushing	4.7%	5.5%
Comments		

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.06.22	Dwg Rev updated	KJ	
C	11.08.22	Dimensions updated	KJ	
D	11.09.30	Dimensions updated	KJ	
E	12.04.16	Added bending, crushing dimensions	KJ	
F	15.05.14	Dwg Rev updated	KJ	

Item	QTY	PART NUMBER	DESCRIPTION
	-245		
	X	D407-667-245	CROSS-TUBE ASSEMBLY (407 HIGH AFT)
1	1	D6011-115	CROSS-TUBE
2	2	D2873-043	NUT PLATE
3	2	D2873-045	NUT PLATE
4	1	D2894-1	SUPPORT
5	2	D3190-1	CHAFFING SHIELD
6	2	D3595-093-430	RUBBER CUSHION
7	14	MS20601AD4W8	RIVET (OR NAS93028-4-8)
8	4	MS21920-22	CLAMP
9	2	MS21920-25	CLAMP (OR MS21920-24)
10	AR	SCOTCH-WELD DP460	EPOXY ADHESIVE, 3M SCOTCH-WELD
11	AR	PROSEAL 980	SEALANT

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6011-115
FINISHED LENGTH = 112.9130.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART OSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART OSI 005 4.2
PAINT CROSS-TUBE PER DART OSI 005 4.2
FOR HATCHED AREAS (ZN A6-2), MASK AS REQUIRED
TO APPLY PRIME AND APPLY CLEAR COAT ONLY
- 3) TOLERANCES ARE PER DART OSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-245" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 27.7 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN-OFF PART: BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSS-TUBE PER OSI 038.
- 12) INSTALL D2894-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER OSI 015. LET CURE FOR 24 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS WITH D3595-093-430 RUBBER CUSHIONS TO SECURE D2894-1 SUPPORT ON TOP SIDE OF THE CROSS-TUBE. ENSURE CLAMPS ARE OPPOSITE CROSS-TUBE SUPPORT.

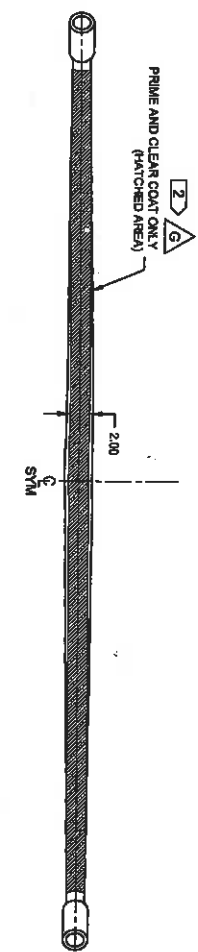
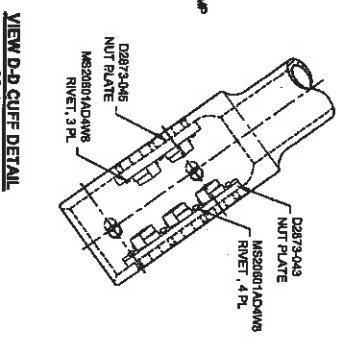
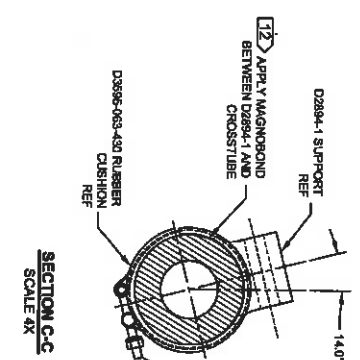
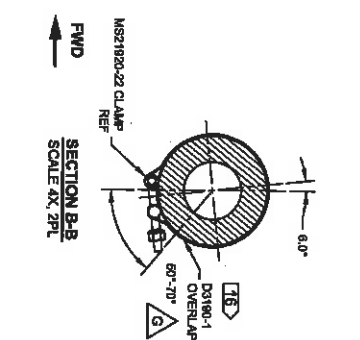
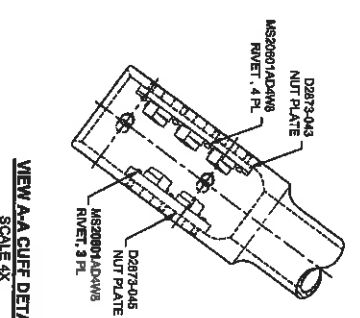
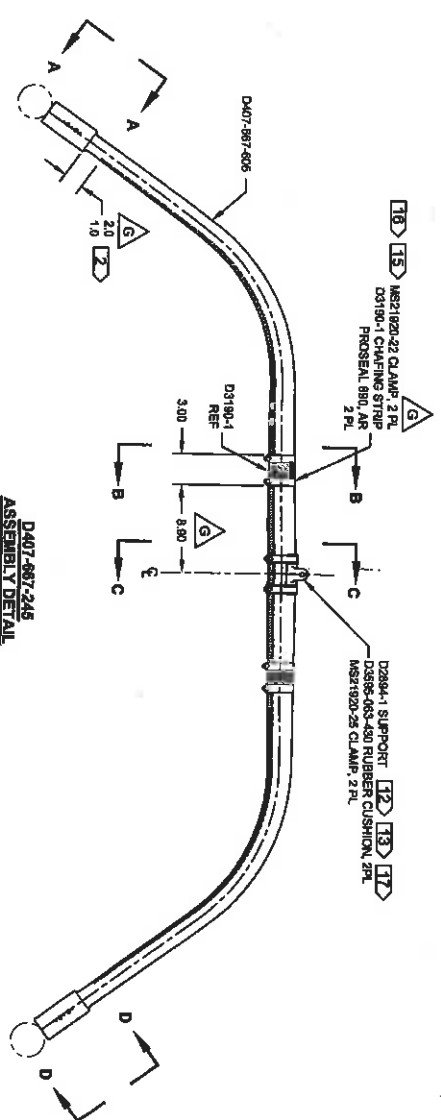
- NOTE: MS21920-24 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- 14) OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.006" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) APPLY A THIN COAT OF PROSEAL 980 ON INSIDE CONCAVE SURFACE OF D3190-1 CHAFFING SHIELDS AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEAL 980 ONTO CROSS-TUBE. BE SURE TO ELIMINATE ANY AIR GAPS.
- 16) INSTALL D3190-1 CHAFFING SHIELDS SO THAT OVERLAP IS 50 TO 70 DEGREES FROM BOTTOM OF CROSS-TUBE OPPOSITE D2894-1 SUPPORT.
- 17) TORQUE CLAMPS 80 TO 100 IN-LB. TORQUE CLAMPS ON D3190-1 CHAFFING SHIELD 40 TO 50 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURED FOR 24 HOURS.

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SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 162554 MJS

170607

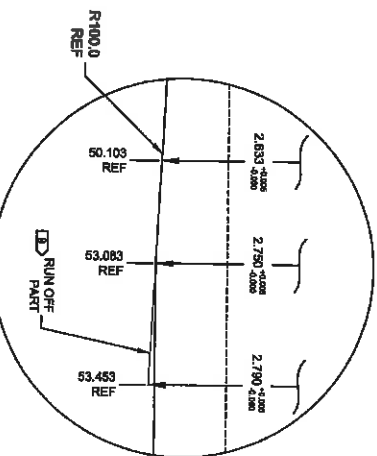
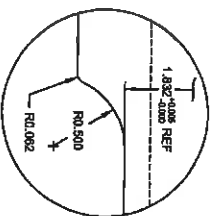
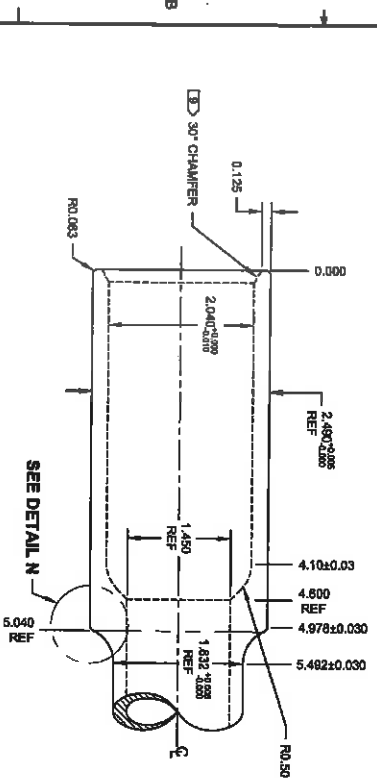
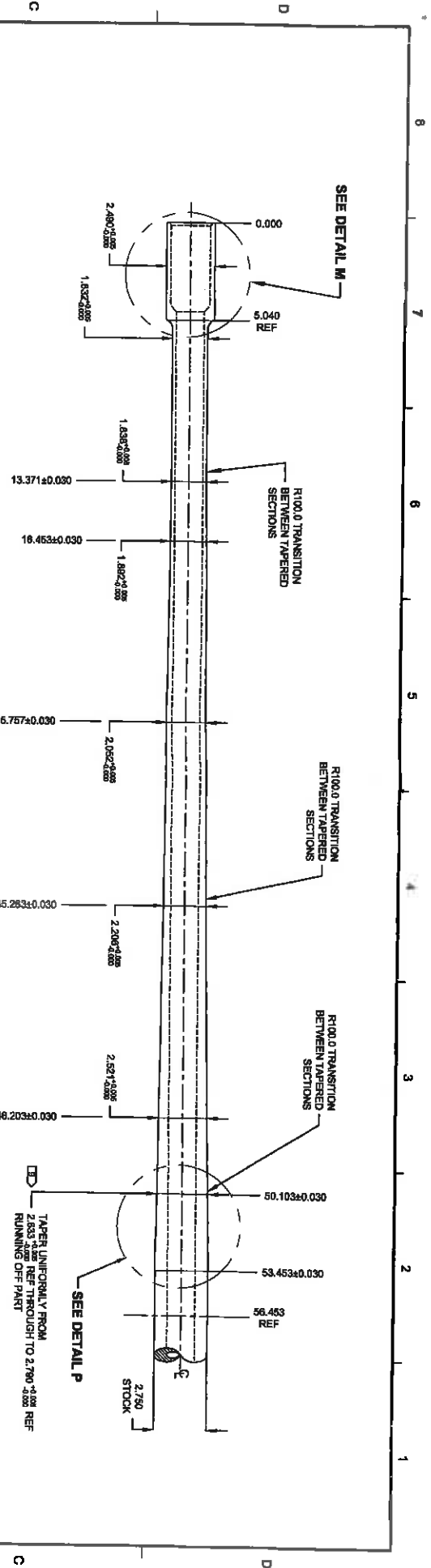
G	INCORP. DES'G D407-667-245-F1-F2 (ZN D6-1, A6-1, D6-2, B6-4, C6-2), 8.90 WAS 8.53 (ZN D6-2); TORQUE REDUCED FOR CHAFFING SHIELD (ZN A6-1); FINISH REVISED TO ALLOW MANUF'G. FLEXIBILITY (ZN C6-1)	RF	15.03.20
F	REFORMAT NOTES TO NEW STANDARDS (ZN B6-1); RELOCATED FLAG #6 (ZN A6-3) PER NCR 210; REMOVED REF. 8, ADD TOLERANCES (ZN C6-3, C4-3 & D2-3)	RF	08.11.06
E	8.02 AND 8.53 WERE 8.40 AND 8.90 (ZN D6-2); REORGANIZED VIEWS AND REFORMATTED DRAWING REASONS: CLAMPS MOVED 0.375 TOWARD CL TO ELIMINATE INTERFERENCE WITH AIRCRAFT MOUNTS. REFERENCE: PAR808-21 AND ECW1228	MB	08.07.24
D	ADD VIEW FOR OEM SHD HOLES, ROTATE ORIENTATION OF CLAMPS SECTION F-F, REMOVE .461 ABRASION STRIP, ADD MAGNOBOND 6398, ADD CUSHION	PH	07.02.07
C	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHT/A SKIDTUBES	PH	05.07.26
B	ADD CHAFFING SHIELD	CP	03.06.21
A	NEW ISSUE	CP	02.06.13
REV.			
DESIGN	DESCRIPTION	BY	DATE
DRAWN	RF		
CHECKED	RF		
MFG. APPR.	RF		
APPROVED	RF		
DE APPR.	RF		
DATE	15.03.20		
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DRAWING NO. D407-667-245			
TITLE CROSS-TUBE ASSY (407 HIGH AFT)			
REV. G			
SHEET 1 OF 4			
SCALE NTS			

RELEASED
2015 APR 09
EAL 15-517



RELEASED
2015 APR 09

DESIGN	4P	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	4P	
ING. APPR.	4P	
APPROVED	4P	
DE APPR.	4P	
DATE	15.03.20	
TITLE	CROSS-TUBE ASSY (407 HIGH AFT)	
SCALE	NTS	



DETAIL M: CROSTUBE CUFF
SCALE 3X

DETAIL N: CUFF TRANSITION
SCALE 2X

DETAIL P: TAPER RUN-OFF
NOT TO SCALE

RELEASED
2015 APR 09

DESIGN	DA07-687-245	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	RF	
MFG. APPR.	RF	
APPROVED	RF	
DE. APPR.	RF	
DATE	15.03.20	
TITLE	CROSTUBE ASSY (A07 HIGH AFT)	REV. G
SCALE	NTS	SHEET 4 OF 4





Work Order Traveler

Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO34256	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO038543
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	

Task: UNSCHEDULED	Sequence: 1
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Work Required:

CARRY OUT NDT ON 8 CROSSTUBES AS PER PO038543

1 AFT CROSSTUB , P/N# D407-667-205RLC , J/S# 167710

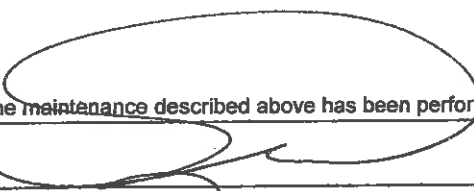
3 AFT CROSSTUBES , P/N# D407-667-205 , J/S# 162554, 168984, 168932

4 FWD CROSSTUBES , P/N# D407-667-105 , J/S# 164067, 164202, 164199, 164200

Action Taken:						Date:	Initial/Stamp:
LPI C/O IAW ASTM E-1417M-13						DEC 04 2017	 
NO CRACK FOUND							
PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923 , DEV. MPO11715 , UV LIGHT M-20142							
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	
		DAS 38 L-RC					

17-12-5
DAS 19 4-89

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature: 	ACA/SCA Stamp 	Date: DEC 04 2017
Name: RAFIK MELIKIAN		

PURCHASE ORDER

Items										
Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
6	168932	D407-667-205	Aft Crosstube - High 407 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 0380	Firmed	12/6/17	1 pcs	0 pcs	1 pcs	\$131.875/pcs	\$131.88
7	168984	D407-667-205	Aft Crosstube - High 407 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 0380	Firmed	12/6/17	1 pcs	0 pcs	1 pcs	\$131.875/pcs	\$131.88
8	162554	D407-667-205	Aft Crosstube - High 407 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 0380	Firmed	12/6/17	1 pcs	0 pcs	1 pcs	\$131.875/pcs	\$131.88
Grand Total:									\$1,061.00	

Order Notes

C2



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Master Unit 000426

Tel (613) 632-5200

Containers on Master Unit 000426				
Serial No	Part No	Customer Part No	Status	Quantity
S038445	AN5-10A	AN5-10A	Allocated	10
S038444	AN5-32A		Allocated	4
S038443	AN5-34A		Allocated	4
S038441	MS21042L5	MS21042L5	Allocated	4
S038439	NAS1149D0563J	NAS1149D0563J	Allocated	18

